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ABSTRACT

This drafting criterion-referenced test item bank is keyed to the drafting competency profile developed by industry and education professionals in Missouri. The 12 references used for drafting the test items are listed. Test items are arranged under these categories: drafting room procedures; tools and equipment; basic drawing skills; geometric construction; orthographic drawings; auxiliary views/revolutions; sectional views/conventions; dimensioning and tolerancing; descriptive geometry; pictorial drawings; introduction to architectural drawings; introduction to electrical/electronic drawings; introduction to pipe drawings; introduction to structural steel drawings; introduction to machine drawings; introduction to surveying drawings; introduction to sheet metal drawings; basic computer-assisted drafting drawings; applied mathematical skills; and leadership competencies. The following information is provided for each test item: unique item number; duty area and task number (Missouri competency profile); letter of correct answer; source; date; learning domain (cognitive, affective, psychomotor); writer(s)/reviewer(s); and accompanying artwork. (YLB)

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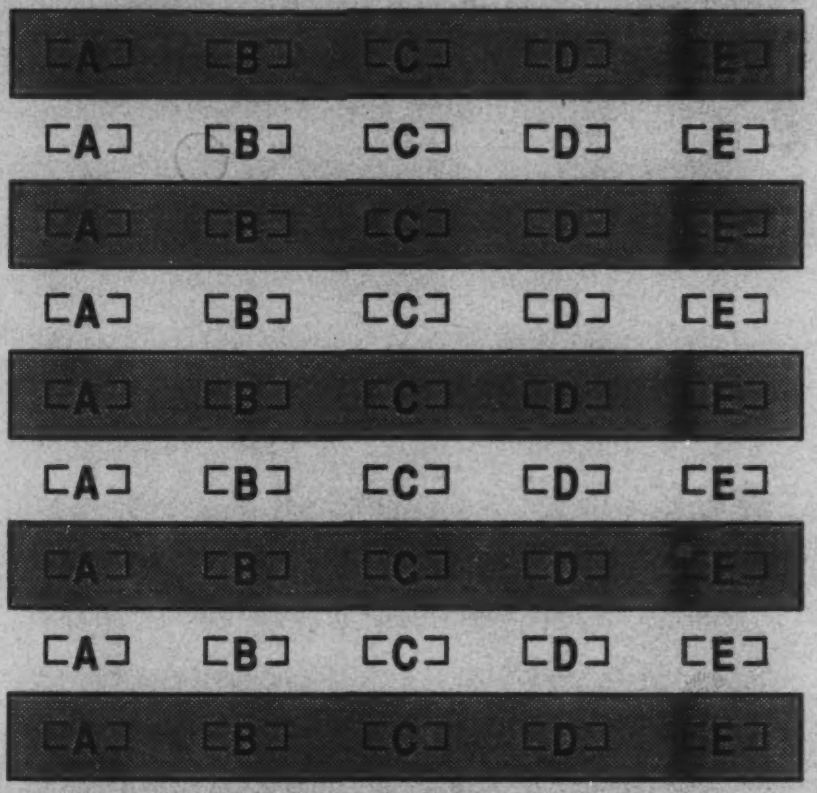

Criterion-Referenced Test Items for DRAFTING

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DRAFTING

Criterion-Referenced Test (CRT) Item Bank

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FOREWORD

Rapid advances in technology are placing heavy demands on both teachers and students in vocational education. These drafting criterion-referenced test items are designed to help meet these demands.

All test writers face one basic challenge: to produce test items that accurately measure what they are intended to measure. This challenge was kept firmly in mind by all those who participated in the development of the bank. The items in the bank are based upon competencies found on the Missouri Drafting Competency Profile (Revised 1990). Much care was taken to ensure that the test items will accurately measure a student's knowledge in regard to these competencies. Every effort was made to ensure that the items are presented in a fair and unbiased manner.

The test items in this publication are designed to work with both the Vocational Instructional Management System (VIMS) and VAMS. The test item bank will allow instructors and administrators to manage testing and evaluation activities in the most efficient way possible. For word processing and test-item generation purposes, an ASCII disk of the item bank has been included with this printed copy.

This test item bank should be viewed as a beginning. It is hoped that future revisions and additions will build the bank into an even more powerful and reliable evaluation and management tool.

Judith Moore, supervisor
Industrial Education
Department of Elementary and Secondary Education

Charles "Chuck" Waibel, director
Industrial Education
Department of Elementary and Secondary Education

ACKNOWLEDGMENTS

This Drafting Criterion-Referenced Test (CRT) Item Bank represents a continuing commitment to Missouri's Vocational Instructional Management System (VIMS). The bank is keyed to the drafting competency profile developed by industry and education professionals in the state. The process of curriculum development includes the following steps:

1. Develop the competency profile (task list)
2. Conduct the instructional analysis
3. Search for existing instructional materials and/or development of a cross-reference of existing instructional materials to the competency profile
4. Develop the curriculum guide
5. Field-test the curriculum guide
6. Develop mediated curriculum (e.g., videocassettes)
7. Develop the test-item bank

To ensure that test items are firmly based on information available to students, development of the test item bank is the final step in the development process.

These individuals contributed to the development of the test items as advisory committee members, writers, and/or field testers:

Don Block, Rolla AVTS
Kelli Engelbrecht, Tri-County Technical School
Bob Fine, Excelsior Springs, AVTS
Arthur Hatch, Waynesville AVTS
Milton Moore, N.S. Hillyard AVTS
Greg Peck, Davis H. Hart Mexico AVTS

A special acknowledgement is extended to Dr. Charles Oviatt, educational consultant, Vienna, Missouri for his assistance in the development of the test-item bank.

Support and contributions of IML staff members were instrumental to the success of this project:

Harley Schlichting, director
Amon Herd, associate director
Phyllis Miller and Dan Stapleton, assistant directors
Fred Smith, graduate assistant
Lori Holliday, word processor III
Judy Kolb, secretary

REFERENCES USED FOR DRAFTING CRITERION-REFERENCED TEST ITEMS

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5. Demonstrate etiquette and courtesy
6. Demonstrate effectiveness in oral and written communications
7. Develop and maintain a code of professional ethics
8. Maintain a good professional appearance
9. Perform basic tasks related to securing and terminating employment
10. Perform basic parliamentary procedures in a group meeting

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1	Unique item number	5	Date (MMYY)
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3	Letter of correct answer	7	Writer(s)/reviewer(s)
	Source (author, year of publication)	8	Accompanying artwork (ART)

.....
1. | A1 | b | IML | 1290 | C | Kelli Engelbrecht |

Which safety consideration is the responsibility of the school?

a. Provide well-organized instruction

b. Provide adequate facilities

c. Report safety hazards

d. Assign clean-up duties

.....
2. | A1 | a | IML | 1290 | C | Kelli Engelbrecht |

What is the cause of most accidents in a drafting/CAD classroom?

a. Horseplay

b. Misuse of equipment

c. Poor working conditions

d. Lack of proper equipment

.....
3-5. | A1 | 1-b,2-d,3-c | IML | 1290 | C | K e l l i Engelbrecht |

Match the safety responsibility on the left to the appropriate person or group on the right.

____ 1.	Provides modern, up-to-date equipment	a.	Education Dept.
		b.	School
____ 2.	Uses classroom equipment in a responsible manner	c.	Instructor
____ 3.	Provides help for each student	d.	Student

.....
6. | A3 | d | IML | 1290 | C | Kelli Engelbrecht |

What does ANSI stand for?

a. American National Society Institute

b. Automotive National Society Instruction

c. Automotive National Standard Instruction

d. American National Standards Institute

.....
7. | A3 | c | Goetsch | 1290 | C | Kelli Engelbrecht |

What is the most commonly accepted drafting standard?

a. MIL STD

b. SAE

c. ANSI

d. ISO

.....
8. | A3 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

The International Standards Organization (ISO) is used for defining drafting criteria.

a. True

b. False

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.....

9. | A3 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

What is achieved by applying ANSI standards to drawings?

a. Clear, concise representation of part

b. Similar methods of assembling parts

c. Orderly machining processes

.....
10. | A4 | c | IML | 1290 | C | Kelli Engelbrecht |

Which is a disadvantage of working in a drafting office?

a. Lots of overtime available

b. Work with both management and production personnel

c. Knowledge of many technical fields is required

.....
11. | A4 | a | IML | 1290 | C | Kelli Engelbrecht |

Which is a job description for a drafter?

a. Draws detail and assembly drawings

b. Exercises considerable judgment in layout

c. Responsible for correcting design errors

d. Works exclusively with engineering staff

.....
12. | A4 | d | IML | 1290 | C | Kelli Engelbrecht |

Which is an entry-level position in a typical drafting department?

a. Drafter

b. Junior drafter

c. Checker

d. Trainee

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.....

13. | A4 | b | IML | 1290 | C | Kelli Engelbrecht |

Cartography is the art of taking pictures of three-dimensional objects.

a. True

b. False

.....
14. | A5 | c | Goetsch | 1290 | C | Kelli Engelbrecht |

Which is a reason for the drafter to keep a log of time spent on a project?

a. Estimating

b. Maintenance schedule

c. Accounting purposes

.....
15. | A5 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

Which information is recorded in an employee log?

a. Contact telephone numbers

b. Critical design dimensions

c. Luncheon dates

d. Technical text

.....
16. | A5 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

What should be included in a personal technical file?

a. Company product data

b. Parts lists

c. Working drawings

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.....

17. | A5 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

Keeping a personal technical file helps the drafter locate information quickly.

a. True

b. False

.....
18. | A6 | b | IML | 1290 | C | Kelli Engelbrecht |

Which is a skilled worker in an area of construction or manufacturing?

a. Engineer

b. Craftsworker

c. Computer operator

.....
19. | A6 | b | IML | 1290 | C | Kelli Engelbrecht |

Surveying is an occupational field related directly to the architectural drafting profession.

a. True

b. False

.....
20. | A6 | c | IML | 1290 | C | Kelli Engelbrecht |

Which occupation is at the highest level on the organizational chart?

a. Senior detailer

b. Squad leader

c. Chief drafter

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.....

21. | A6 | c | IML | 1290 | C | Kelli Engelbrecht |

Which drafting profession is an area of specialization?

a. Machinist

b. Surveyor

c. Cartographer

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.....

1-4. | B1 | 1-c,2-a,3-e,4-b | Giesecke | 1290 | C | Kelli Engelbrecht |

Match the line type on the right with the characteristic on the left.

1.	Thick, solid, and dark	a.	Hidden
2.	Series of short lines	b.	Center
3.	Solid thin lines	c.	Visible
4.	Broken thin line with a small dash	d.	Break
		e.	Dimension and extension

.....
5. | B2 | d | IML | 1290 | C | Kelli Engelbrecht |

What is the total of the three angles of a standard triangle?

a. 45°

b. 90°

c. 120°

d. 180°

.....
6. | B2 | d | Giesecke | 1290 | C | Kelli Engelbrecht |

When 360° is divided with a T-square using 30°-60°, and 45° triangles, what is the size of the smallest segment?

a. 180°

b. 90°

c. 30°

d. 15°

.....
7. | B2 | a | French | 1290 | C | Kelli Engelbrecht |

Which instrument is used for making measurements and laying off distances?

a. Scale

b. Divider

c. Compass

d. Template

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.....

8. | B2 | c | IML | 1290 | C | Kelli Engelbrecht |

In what capacity is nonreproducible lead used?

a. Thin lines

b. Adding notes

c. Layout work

d. Lettering

.....
9. | B3 | a | Madsen | 1290 | C | Kelli Engelbrecht |

Which printing process is used to produce white prints?

a. Ultraviolet light and ammonia vapors

b. Water wash

c. Pressure sensitive

.....
10. | B3 | c | Madsen | 1290 | C | Kelli Engelbrecht |

Which reproduction can be used as an original?

a. White print

b. Blueprint

c. Sepia

d. Ammonia

.....
11. | B3 | c | Madsen | 1290 | C | Kelli Engelbrecht |

Which drawing medium yields the best reproduction?

a. Plastic lead

b. Lead

c. Ink

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12. | B3 | a | Madsen | 1290 | C | Kelli Engelbrecht |

Which process is a photographic reproduction on film?

a. Microfilm

b. Sepia

c. Blueprint

d. Diazo

.....
13. | B6 | c | Madsen | 1290 | C | Kelli Engelbrecht |

What does the vernier clamp on a drafting machine accomplish?

a. Locks the protractor at 15°

b. Locks the protractor at 45°

c. Locks the protractor at any angle

.....
14. | B6 | b | Madsen | 1290 | C | Kelli Engelbrecht |

What is the smallest division on a drafting machine vernier?

a. 1 minute

b. 5 minutes

c. 15 minutes

d. 30 minutes

.....
15. | B6 | b | Madsen | 1290 | C | Kelli Engelbrecht |

A track machine must be used in a horizontal position.

a. True

b. False

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16. | B6 | a | Madsen | 1290 | C | Kelli Engelbrecht |

What is the purpose of the index control on a drafting machine?

a. Permits automatic 15° stops

b. Frees scale movement

c. Locks protractor at intermediate

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1. | C1 | a | French | 1290 | C | Kelli Engelbrecht |

After a sheet is taped down, which is the next step?

a. Block in views

b. Consider characteristics

c. Lay off detailed measurements

.....

2. | C1 | b | IML | 1290 | C | Kelli Engelbrecht |

If the depth of the top view is 45 mm, the height of the front view is 65 mm, and the working space is 260 mm, what is the spacing between the views?

a. 25 mm

b. 50 mm

c. 1"

d. 1 1/2"

.....

3. | C1 | b | IML | 1290 | C | Kelli Engelbrecht |

ANSI has NOT set standards for paper size.

a. True

b. False

```
.....
4.  | C1 | a  | French  | 1290   | C  | Kelli Engelbrecht |
```

How does the drafter determine which views are necessary?

a. Minimum number of views to describe the part

b. Left and right sides of sheet are balanced

c. As many views as will fit on the sheet

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.....
5. | C2 | d | IML | 1290 | C | Kelli Engelbrecht |

Which information is found in the title block?

a. Material

b. Revision number

c. Assembly list number

d. Scale

.....
6. | C2 | a | IML | 1290 | C | Kelli Engelbrecht |

Where does the title block usually appear?

a. Lower right corner of drawing

b. Front cover sheet

c. Indexing sheet

d. Top right hand corner

.....
7. | C2 | c | IML | 1290 | C | Kelli Engelbrecht |

Which information is found in a revision block?

a. Drafter's name

b. Issue date

c. Approval

d. Scale

```
.....
8.  | C2 | d  | IML     | 1290    | C  | Kelli Engelbrecht |
```

Which information is found on a parts list?

a. Finish

b. Issue date

c. Drawing number

d. Quantity needed

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.....
9. | C3 | b | IML | 1290 | C | Greg Peck |

Which is a method of proportioning a sketch?

a. Cut out a cardboard template

b. Use graph paper

c. Project the image on a wall

d. Use a compass

.....
10. | C3 | a | IML | 1290 | C | Greg Peck |

A simple cardboard scale can be used to assist in making a proportional sketch.

a. True

b. False

.....
11. | C3 | a | Spence | 1290 | C | Greg Peck |

What is the key to a good sketch?

a. Proportion

b. Round circles

c. Horizontal and vertical lines

d. Line work

.....

12.	C3	b	IML	1290	C	Greg Peck

A visible or hidden line can indicate that a sketch is out of proportion.

a. True

b. False

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.....
13. | C4 | d | IML | 1290 | C | Greg Peck |

What is the purpose of using a scale?

a. Make straight lines

b. Convert measurements to metric

c. Indicate distance between points

d. Provide a standard of reference

.....
14. | C4 | a | IML | 1290 | C | Greg Peck |

Which scale has divisions in units of 10?

a. Civil engineer's

b. Architect's

c. Mechanical engineer's

d. Aeronautical engineer's

.....
15. | C4 | d | IML | 1290 | C | Greg Peck |

Which scale has divisions in feet and inches?

a. Aeronautical engineer's

b. Civil engineer's

c. Mechanical engineer's

d. Architect's

.....

| 16. | C4 | c | IML | 1290 | C | Greg Peck |

Which scale has divisions in inches and fractional portions of an inch (½ size, ¼ size)?

a. Architect's

b. Civil engineer's

c. Mechanical engineer's

d. Aeronautical engineer's

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.....
17. | C5 | a | IML | 1290 | C | Greg Peck |

Some letters appear top-heavy if the top portion is the same as the bottom.

a. True

b. False

.....
18. | C5 | d | IML | 1290 | C | Greg Peck |

Why is the center line of the letters B, E, F, and H slightly above center?

a. To make the letter look thinner

b. It is a more natural stroke

c. To make the letter look taller

d. To prevent the letter from being top-heavy

.....
19. | C5 | b | IML | 1290 | C | Greg Peck |

Which is the most common type of lettering used in machine drawings?

a. Roman

b. Gothic

c. Helvetica

d. Script

```
.....
20.  | C5 | a  |    | 1290    | C  | Greg Peck    |
```

Guidelines should be used for all lettering.

a. True

b. False

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.....
21. | C6 | a | Giesecke | 1290 | C | Greg Peck |

A triangular scale should NOT be used as a straight edge.

a. True

b. False

.....
22. | C6 | d | Giesecke | 1290 | C | Greg Peck |

Which pencil technique assists in making uniform lines?

a. Apply a smaller amount of pressure

b. Maintain a flat spot on the end of the lead

c. Use a softer lead

d. Rotate lead as the line is drawn

.....
23. | C6 | b | Giesecke | 1290 | C | Greg Peck |

Which property should all lines have in order to print well?

a. Thin

b. Dense

c. Thick

d. Fuzzy

.....

| 24. | C6 | a | Giesecke | 1290 | C | Greg Peck |

How should tangents between straight lines and curves appear?

a. One smooth continuous line

b. Individual segments should be visible

c. Crosses to indicate the tangent's position

d. Little spaces between them

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.....
25. | C7 | a | IML | 1290 | C | Greg Peck |

Mechanical devices provide a wide range of lettering styles.

a. True

b. False

.....
26. | C7 | c | IML | 1290 | C | Greg Peck |

Which is a type of lettering instrument?

a. Vegigraph

b. Elroy

c. Leroy

d. Kilroy

.....
27. | C7 | b | IML | 1290 | C | Greg Peck |

Lettering instruments produce only vertical lettering.

a. True

b. False

```
.....
28.  | C7 | a  | IML     | 1290    | C  | Greg Peck    |
```

Lettering instruments are often used for presentation drawings.

a. True

b. False

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.....
29. | C8 | c | Spence | 1290 | C | Greg Peck |

Which type of line is most often used in laying out a drawing?

a. Thick and light

b. Thick and dark

c. Thin and light

d. Thin and dark

.....
30. | C8 | a | Spence | 1290 | C | Greg Peck |

Circles and arcs should be darkened in before straight lines.

a. True

b. False

.....
31. | C8 | a | Spence | 1290 | C | Greg Peck |

Correct pencil technique requires the lead to be sharpened properly.

a. True

b. False

.....
32. | C8 | a | Spence | 1290 | C | Greg Peck |

The lead in a pencil should be soft enough to draw the desired line without excessive pressure.

a. True

b. False

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.....

33. | C10 | d | Spence | 1290 | C | Greg Peck |

Which describes the role of an intermediate?

a. Original drawing that indicates revisions

b. Original drawing to be filed

c. Copy used as a title page

d. Copy used to produce other copies

.....

34. | C10 | a | Spence | 1290 | C | Greg Peck |

Which describes a benefit of an intermediate over a whiteprint?

a. Areas of the drawing can be erased and replaced

b. Bond paper is more durable

c. It cannot be revised

d. It does not require the liquid bath

.....

35. | C10 | b | Spence | 1290 | C | Greg Peck |

Which type of paper is used for intermediates?

a. Bond

b. Translucent

c. Opaque

.....

36.	C10	a	Spence	1290	C	Greg Peck

A special correction fluid should be used on an intermediate.

a. True

b. False

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.....

1. | D1 | c | IML | 1290 | C | Don Block |

What does bisect an angle refer to?

a. Transfer an angle from one object to another

b. Rotate the angle 90°

c. Split an angle into two equal angles

d. Draw a line tangent to a circle

.....

2. | D1 | d | IML | 1290 | C | Don Block |

What results from bisecting a line?

a. Two lines of unequal length

b. Two parallel lines

c. New line at 45° to the line

d. Line perpendicular to another line

.....

3. | D1 | b | IML | 1290 | C | Don Block |

The mechanical scale is the tool used to bisect an arc.

a. True

b. False

```
.....
4.  | D1 | b  | IML     | 1290    | C  | Don Block    |
```

Bisecting an arc creates another arc exactly like the original arc.

a. True

b. False

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.....

5. | D2 | a | IML | 1290 | C | Don Block |

What is the minimum number of sides on a polygon?

a. 3

b. 4

c. 5

d. 6

.....

6. | D2 | d | IML | 1290 | C | Don Block |

Which is NOT a regular polygon?

a. Object with three equal sides and angles

b. Object with five equal sides and angles

c. Equilateral triangle

d. Isosceles triangle

.....

7. | D2 | b | IML | 1290 | C | Don Block |

What figure is drawn using a major and a minor axis?

a. Circle

b. Ellipse

c. Semicircle

d. Sector

8.	D2	b	IML as above	1290	C	Don Block

An ellipse is constructed by drawing a line tangent to two circles.

a. True

b. False

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.....

9. | D3 | a | Madsen | 1290 | C | Don Block |

What is tangent?

a. Line or arc that intersects a circle or arc at only one point

b. Line or arc passing through the centers of two circles

c. Line passing through two parallel lines

d. Two lines equidistant from one another

.....

10. | D3 | b | IML | 1290 | C | Don Block |

What tool is NOT used to draw an arc tangent to a line?

a. Compass

b. Dividers

c. Ellipse template

d. French curve

.....

11. | D3 | a | Goetsch | 1290 | C | Don Block |

Two circles that touch at only one point are tangent.

a. True

b. False

```
.....
12. | D3 | a  | IML     | 1290    | C  | Don Block    |
```

A line can be drawn tangent to an arc and a circle.

a. True

b. False

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.....

13. | D5 | a | IML | 1290 | C | Don Block |

A line can be easily divided into equal parts without measuring along the line.

a. True

b. False

.....

14. | D5 | d | IML | 1290 | C | Don Block |

Which tools are typically used to divide a line into equal parts?

a. Circle template and triangle

b. Circle template and t-square

c. Two triangles and t-square

d. Two triangles and scale

.....

15. | D5 | a | Giesecke | 1290 | C | Don Block |

Dividing a line into equal parts is useful in drawing threads.

a. True

b. False

16.	D5	a	Giesecke	1290	C	Don Block

A divider can be used to divide a line into equal parts.

a. True

b. False

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.....

1. | E1 | b | IML | 1290 | C | Bob Fine |

Which method of interpreting an orthographic projection (3rd angle) drawing is misleading?

a. Viewing plane between object and viewer

b. Object between viewing plane and viewer

c. Six views may be shown

d. Three of the six views may be shown

.....

2. | E1 | c | IML | 1290 | C | Bob Fine |

Which projection method is used in the United States?

a. First angle

b. Second angle

c. Third angle

d. Best angle

.....

3. | E1 | c | IML | 1290 | C | Bob Fine |

Which best describes the total normal views possible in orthographic projection?

a. Top, front, right side

b. Left side, bottom, rear

c. Six sides or views

d. Three sides or views

4.	E1	C	IML	1290	C	Bob Fine

Which is NOT a method of visualizing an orthographic projection?

a. Look at actual object or picture

b. Select views necessary to best describe the object

c. Select left and right vanishing points

d. Select the most descriptive view of the object

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.....

5. | E2 | a | IML | 1290 | C | Bob Fine |

Multiview drawings contain one, two, three, or more views.

a. True

b. False

.....

6-9. | E2 | 1-c,2-a,3-b,4-d | IML | 1290 | C | Bob Fine |

Arrange the steps for making a two view sketch in the correct order by matching the letter to the corresponding blank.

____ 1.	Step 1	a.	Block in details; using diagonals to locate centers, lightly sketch the circles and arcs
____ 2.	Step 2		
____ 3.	Step 3	b.	Erase construction lines
____ 4.	Step 4	c.	Block in height, width, and depth using horizontal and vertical lines
		d.	Darken in visible (object) lines
		e.	Put in subtitles, dimensions, notes, main titles, scale on sheet

.....
10. | E2 | c | IML | 1290 | C | Bob Fine |

Which is NOT a commonly used view in orthographic projection?

a. Front

b. Top

c. Back

d. Right side

.....
11. | E2 | a | IML | 1290 | C | Bob Fine |

Which space dimension is considered improper?

a. Length

b. Height

c. Depth

d. Width

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.....
12. | E3 | b | IML | 1290 | C | Bob Fine |

Which is NOT a correct method of transferring dimensions?

a. 45° mitre line

b. 30-60° method

c. Dividers

d. Scale

.....
13. | E3 | c | IML | 1290 | C | Bob Fine |

Which is NOT found in orthographic views?

a. Point

b. True length line

c. Auxiliary view

d. Foreshortened line

.....
14. | E3 | b | IML | 1290 | C | Bob Fine |

Which type of surface used in orthographics is incorrect?

a. Normal

b. True length

c. Inclined

d. Oblique

15.	E3	a	IML	1290	C	Bob Fine

Which is NOT a correct technique for using/drawing center lines to produce an orthographic drawing?

a. Drawn as a series of short dashes

b. Used to locate the centers of symmetrical objects and paths of motion

c. Drawn as a series of long and short dashes

d. Used with circles and round objects

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.....

16. | E4 | a | IML | 1290 | C | Bob Fine |

An object placed in a glass box (third angle) shows the view between object and viewer.

a. True

b. False

.....

17. | E4 | a | IML | 1290 | C | Bob Fine |

An isometric view helps when drawing top, front, and right side views.

a. True

b. False

.....

18. | E4 | d | IML | 1290 | C | Bob Fine |

Which is the correct positioning of top and front views in an orthographic drawing?

a. Diagonal to one another

b. Side by side

c. Do not align

d. Align directly above or below one another

19.	E4	d	IML	1290	C	Bob Fine

What are the three most common principal views used in an orthographic projection?

a. Top, front, rear

b. Top, front, bottom

c. Top, front, left side

d. Top, front, right side

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.....
20. | E5 | a | IML | 1290 | C | Bob Fine |

Which answer does not apply when identifying first angle projection (European)?

a. Front view is above the bottom view

b. Right side is to the left of the front view

c. Left side is to the right of the front view

d. Top view is below front view

.....
21. | E5 | b | IML | 1290 | C | Bob Fine |

How is the top view projected when drawing a round cone in third angle projection?

a. Right of front view

b. Above the front view

c. Below the front view

d. Left of front view

.....
22. | E5 | a | IML | 1290 | C | Bob Fine |

"Plane of projection" is the surface to which views are projected when using the glass box method.

a. True

b. False

23.	E5	b	IML	1290	C	Bob Fine

An orthographic projection uses a total of four planes.

a. True

b. False

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.....

1. | F1 | a | French | 1290 | C | Arthur Hatch |

What is the relationship between the auxiliary view plane and the inclined surface?

a. Parallel

b. Angular

c. Symmetrical

.....

2. | F1 | a | Goetsch | 1290 | C | Arthur Hatch |

What is the best method of locating points on the edge of a curved surface?

a. Divide the curve into equal angular segments

b. Divide the curve into randomly selected points

c. Divide the curve into equal horizontal sections

d. Divide the curve into equal vertical sections

.....

3. | F1 | d | IML | 1290 | C | Arthur Hatch |

At what angle is the line of sight to the edge view of the inclined surface?

a. 30°

b. 45°

c. 60°

d. 90°

```
..........
4.   | F1 | c  | IML     | 1290    | C  | Arthur Hatch |
```

What reference line is best used for a symmetrical part?

a. Front edge

b. Between views

c. Center line

d. Back edge

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Field	Contents	Field	Contents
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.....
5. | F3 | d | IML | 1290 | C | Arthur Hatch |

Which term describes lines that do NOT intersect and are NOT parallel to one another or the principal views?

a. True length

b. Perpendicular

c. Inclined

d. Skew

.....
6. | F3 | b | IML | 1290 | C | Arthur Hatch |

From which view is a secondary auxiliary view projected?

a. Any one of the normal views

b. Primary auxiliary view

c. Only from the front view

d. Only from the top view

.....
7. | F3 | a | French | 1290 | C | Arthur Hatch |

Which type of surface does a secondary auxiliary view show as true size and shape?

a. Oblique

b. Normal

c. Curved

d. Inclined

```
..........
8.   | F3 | b  | IML     | 1290    | C  | Arthur Hatch |
```

Which basic principle is used when determining where to take depth measurements for secondary auxiliary views?

a. Use an adjoining view

b. Skip á view

c. Use any other view

d. Use only the right side view

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.....
9. | F4 | d | IML | 1290 | C | Arthur Hatch |

Why are auxiliary views used?

a. Substitute for any one of the six normal views

b. Project the length of structural members

c. Determine the scope of geological formations

d. Describe inclined or oblique surfaces

.....
10. | F4 | a | Goetsch | 1290 | C | Arthur Hatch |

What determines the need for an auxiliary view?

a. Features that cannot be dimensioned where they appear true size

b. Features that must be located in more than one view

c. Features that are hidden inside the part

d. Features that have many small details where the lines would be close together

.....
11. | F4 | a | Goetsch | 1290 | C | Arthur Hatch |

Only the inclined or oblique surface is drawn in a partial auxiliary view.

a. True

b. False

.....

12.	F4	b	Goetsch	1290	C	Arthur Hatch

Hidden lines are usually drawn in auxiliary views.

a. True

b. False

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.....

1. | G1 | a | Jensen | 1290 | C | Kelli Engelbrecht |

A sectional view frequently replaces one of the regular views.

a. True

b. False

.....

2. | G1 | a | Jensen | 1290 | C | Kelli Engelbrecht |

Which line indicates where the imaginary cutting takes place?

a. Cutting plane

b. Long break

c. Chain

d. Phantom

.....

3. | G1 | b | Jensen | 1290 | C | Kelli Engelbrecht |

Removed sections are usually placed on another sheet.

a. True

b. False

.....
4. | G1 | b | Jensen | 1290 | C | Kelli Engelbrecht |

What type of section is being used when the cutting plane extends entirely through the object?

a. Half section

b. Full section

c. Revolved

d. Offset

Field	Contents	Field	Contents
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.....

5. | G2 | c | Jensen | 1290 | C | Kelli Engelbrecht |

Different symbolic section lining is used mainly on what type of drawing?

a. Floor plan

b. Orthographic

c. Assembly

d. Sheet metal

.....

6. | G2 | a | Jensen | 1290 | C | Kelli Engelbrecht |

What does section lining indicate?

a. Surface that has been cut

b. Location of the cut

c. Direction of sight

d. Surface to be finished

.....

7. | G2 | b | Jensen | 1290 | C | Kelli Engelbrecht |

Which symbolic section lining is recommended for general use?

a. Steel

b. Cast iron

c. Brass

d. Aluminum

8.	G2	d	Goetsch	1290	C	Kelli Engelbrecht

How is section lining represented?

a. Thick, dashed, dense

b. Thick, solid, dense

c. Thin, dashed, dense

d. Thin, solid, dense

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.....
9. | G3 | a | Goetsch | 1290 | C | Kelli Engelbrecht |

In which direction do arrows added to the end of the cutting plane line point?

a. Toward the part that is being viewed

b. Perpendicular to the center line

c. 90° from the center line

d. Toward the section view

.....
10. | G3 | a | Madsen | 1290 | C | Kelli Engelbrecht |

The sectional view can be placed in a position other than a normal orthographic view.

a. True

b. False

.....
11. | G3 | c | Goetsch | 1290 | C | Kelli Engelbrecht |

How is a cutting plane line represented?

a. Thin, solid, dense line

b. Thick, solid, dense line

c. Thick, dense, continuous line

d. Thin, dense, dashed line

```
..........
12.  | G3 | b  | Goetsch | 1290    | C  | Kelli Engelbrecht |
```

The cutting plane should always be shown.

a. True

b. False

Field	Contents	Field	Contents
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.....

13. | G4 | b | Madsen | 1290 | C | Kelli Engelbrecht |

What is the line quality of short break lines for wood and metal?

a. Thin, freehand, irregular

b. Thick, freehand, irregular

c. Thick, vertical, rigid

d. Thin, vertical, rigid

.....

14. | G4 | a | Madsen | 1290 | C | Kelli Engelbrecht |

In which situation is the conventional break line used?

a. Long, constant shape must be shown as broken

b. Section must be moved to other location

c. Interior features must be exposed and clarified

d. Symmetrical object must be clarified

.....

15. | G4 | b | Giesecke | 1290 | C | Kelli Engelbrecht |

What is a conventional break through tubing called?

a. Break out

b. S-break

c. Section

d. Fillet

.....

| 16. | G4 | b | Giesecke | 1290 | C | Kelli Engelbrecht |

A break through a metal rod and a metal tube are identical.

a. True

b. False

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.....
17. | G5 | c | Pouler | 1290 | C | Kelli Engelbrecht |

What kind of sectioning is used on a large area?

a. Full sectioning

b. Crosshatching

c. Outline

d. Edging

.....
18. | G5 | b | Giesecke | 1290 | C | Kelli Engelbrecht |

When a part is very small, what symbolizes that the part is sectioned?

a. Outline

b. Fill-in

c. General note

d. Section lines

.....
19. | G5 | d | Pouler | 1290 | C | Kelli Engelbrecht |

Which term describes a cutting plane that passes entirely through an object?

a. Offset

b. Revolved

c. Half

d. Full

.....
20. | G5 | b | Pouler | 1290 | C | Kelli Engelbrecht |

Spokes and arms are sectioned in a different direction than the surrounding section lines.

a. True

b. False

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4	Source (author, year of publication)	8	Accompanying artwork (ART)

.....

1. | H1 | d | Goetsch | 1290 | C | Arthur Hatch |

Which is the preferred location for dimensions?

a. Above the views

b. Below the views

c. Between the part and the borderline

d. Between the views

.....

2. | H1 | c | ANSI 14.5, 1982 | 1290 | C | Arthur Hatch |

When a leader is used for a local note to dimension a threaded hole, where is the arrow placed?

a. Anywhere along the circumference of the major diameter of the threaded hole

b. Pointing to the center of the hole and touching the minor diameter of the threaded hole

c. Pointing to the center of the hole and touching the major diameter of the threaded hole

d. At any angle and touching the minor diameter of the threaded hole

.....
3. | H1 | b | ANSI 14.5 1982 | 1290 | C | Arthur Hatch |

Which is true of dimensioning characters that are correctly oriented?

a. Read from the bottom or right side or the drawing sheets

b. Read from the bottom of the drawing sheet

c. Read from the bottom or the left side of the drawing sheets

d. Parallel to the feature being dimensioned

.....
4. | H1 | b | ANSI 14.6 1978 | 1290 | C | Arthur Hatch |

Which is the correct local note for a threaded hole for a commonly purchased 1/4" coarse-threaded fastener?

a. .250-20 UNC-2A

b. .250-20 UNC-2B

c. 1/4"-20 UNC-1A

d. 1/4"-20 UNC-1B

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.....
5. | H2 | a | Goetsch | 1290 | C | Arthur Hatch |

A dimension line may be an arc.

a. True

b. False

.....
6. | H2 | b | Goetsch | 1290 | C | Arthur Hatch |

Which lines are usually used as extension lines?

a. Angled visible outlines

b. Center lines

c. Dimension lines

d. Leaders

.....
7. | H2 | d | Goetsch | 1290 | C | Arthur Hatch |

What is a dimension line?

a. Thin, dark, solid line which extends from the outline of the part

b. Thin, dark, solid line that points toward a part outline

c. Thin, dark, solid line that crosses over the part outline

d. Thin, dark, solid line which indicates the linear distance being dimensioned

.....

8.	H2	b	Goetsch	1290	C	Arthur Hatch

Extension lines are thick, dark, dashed lines.

a. True

b. False

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Field	Contents	Field	Contents
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.....
9. | H3 | d | Goetsch | 1290 | C | Arthur Hatch |

Which is described by location dimensions?

a. Shape of the object

b. Profile of the object

c. Size of the object

d. Position of features or geometric shapes

.....
10-13. | H3 | 1-c,2-d,3-e,4-a | Goetsch | 1290 | C | Arthur Hatch |

Arrange the steps in applying dimensions to drawings in the correct order by matching the letter to the corresponding blank.

____ 1.	Step 1	a.	Letter dimensions and add arrowheads
____ 2.	Step 2	b.	Convert decimals to fractions
____ 3.	Step 3	c.	Draw light layout lines to plan extension and dimension lines
____ 4.	Step 4	d.	Draw guidelines for dimension characters and numerals
		e.	Darken extension lines and dimension lines

.....
14. | H3 | b | ANSI 14.5, 1982 | 1290 | C | Arthur Hatch |

When using leaders, what symbol is used to indicate a surface?

a. Cross

b. Small dot

c. Arrowhead

d. X

.....
15. | H3 | a | ANSI 14.5M, 1982 | 1290 | C | Arthur Hatch |

Where is the diameter or radius symbol located in relation to size numerals in a local note attached to a leader?

a. To the left

b. To the right

c. Above

d. Below

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Field	Contents	Field	Contents
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.....

16. | H4 | d | IML | 1290 | C | Arthur Hatch |

What does tolerance refer to in relation to the dimension of a drawing?

a. Operation used

b. Material used

c. Dimension not important

d. Permissible variation

.....

17. | H4 | c | IML | 1290 | C | Arthur Hatch |

Which type of fit has a positive allowance between mating parts?

a. Locational

b. Transitional

c. Clearance

d. Interference

.....

18. | H4 | a | ANSI 14.5, 1982 | 1290 | C | Arthur Hatch |

Which is an example of bilateral tolerance?

a. +.003-.003

b. +.000-.004

c. +.002-.000

d. .785-.789

.....

19. | H4 | b | Goetsch | 1290 | C | Arthur Hatch |

What is the purpose of tolerancing?

a. Allow for mistakes in measuring

b. Interchangeability in manufacturing

c. Allow for shrinkage in materials

d. Allow for mistakes in drawing

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.....
20. | H5 | c | French | 1290 | C | Arthur Hatch |

How many millimeters equal one inch?

a. 23.2

b. 24.5

c. 25.4

d. 26.3

.....
21. | H5 | d | French | 1290 | C | Arthur Hatch |

What decimal fraction if an inch equals one millimeter?

a. .0200

b. .0250

c. .0312

d. .0394

.....
22. | H5 | d | French | 1290 | C | Arthur Hatch |

When drawing half scale, how long is the line if the dimension of the part is 7/8 inches long?

a. 1 3/4"

b. 1 1/2"

c. 9/16"

d. 7/16"

.....
23. | H5 | b | French | 1290 | C | Arthur Hatch |

If the dimension of a part reads 1.752 - 1.748, how long is the line on a drawing?

a. 1.752

b. 1.750

c. 1.749

d. 1.748

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.....
24. | H6 | b | IML | 1290 | C | Arthur Hatch |

What is a theoretically "perfect" dimension (similar to a reference dimension or nominal dimension) called?

a. Datum

b. Basic

c. True

d. Size

.....
25. | H6 | d | IML | 1290 | C | Arthur Hatch |

What tolerance specifies the allowable variation of a feature from perfect form?

a. Location

b. Orientation

c. Size

d. Form

.....
26. | H6 | c | IML | 1290 | C | Arthur Hatch |

What is the state of a feature in which all tolerances of location, size, and form are at their maximum?

a. Perfect form

b. Maximum material condition

c. Virtual condition

d. Least material condition

.....
27. | H6 | a | IML | 1290 | C | Arthur Hatch | .

What is a geometric shape of a part such as a surface, contour, boss, or hole called?

a. Feature

b. Datum

c. Profile

d. Condition

Field	Contents	Field	Contents
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.....
28. | H7 | b | IML | 1290 | C | Arthur Hatch |

In a feature control frame, the tolerance numerals are located to the right of the referenced datums.

a. True

b. False

.....
29. | H7 | d | IML | 1290 | C | Arthur Hatch |

What is the significance of a datum feature symbol located below a form tolerance feature frame?

a. The datum has an implied relationship to the form tolerance

b. The location implies no particular significance

c. The datum is established before the form tolerance is considered

d. The feature becomes a datum after meeting the conditions of the form tolerance

.....
30. | H7 | b | IML | 1290 | C | Arthur Hatch |

What is defined by applying geometric tolerancing to a drawing?

a. Shape of the part

b. Function of the part

c. Size of the part

d. Engineer's request

31.	H7	a	IML	1290	C	Arthur Hatch

A perpendicularity tolerance requires a referenced datum.

a. True

b. False

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Field	Contents	Field	Contents
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.....
1. | I1 | d | French | 1290 | C | Arthur Hatch |

Why is it important to be able to find the graphic solution of points?

a. Find the depth in the front view or the height in the top view

b. Permit moving a point around in space

c. Find the center point of an inclined or oblique plane

d. Points may stand for the intersection of two lines or the corners of an object

.....
2. | I1 | a | French | 1290 | C | Arthur Hatch |

When finding the graphic solution of points, it is important to indicate the reference plane when identifying the points.

a. True

b. False

.....
3. | I1 | a | French | 1290 | C | Arthur Hatch |

The depth of a point can be determined in the related plane.

a. True

b. False

.....
4. | I1 | c | French | 1290 | C | Arthur Hatch |

In which view can the true distance between a point and a line be determined?

a. One that shows the true length of the line

b. One that shows a front view

c. One that shows a point view of the line

d. One that shows a foreshortened view of the line

Field	Contents	Field	Contents
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.....
5. | I2 | b | French | 1290 | C | Arthur Hatch |

In which view can the true distance between two lines be determined?

a. One that shows the lines intersecting

b. One that shows a point view of one of the lines

c. A front view of both of the lines

d. One that shows a point view of both of the lines

.....
6. | I2 | a | French | 1290 | C | Arthur Hatch |

The true length of a line must be determined to find the point view of a line.

a. True

b. False

.....
7. | I2 | a | IML | 1290 | C | Arthur Hatch |

Given front and top views of a skewed line, from which view must the depth be taken if the front view was used to determine the reference line of the auxiliary view?

a. Top

b. Secondary auxiliary

c. Right side

d. Vertical plane

.....
8. | I2 | d | IML | 1290 | C | Arthur Hatch |

Which view is required to find the true length of a line oblique to any of the principal views?

a. Normal

b. Inclined

c. Right side

d. Auxiliary

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.....

9. | I3 | a | French | 1290 | C | Arthur Hatch |

Which geometric element is formed by the intersection of two planes?

a. Line

b. Point

c. Plane

d. Curve

.....

10. | I3 | c | French | 1290 | C | Arthur Hatch |

Which auxiliary view must be constructed before a true size auxiliary view of an oblique plane can be drawn?

a. Inclined

b. Oblique

c. Edge

d. Secondary auxiliary

.....
11. | I3 | d | IML | 1290 | C | Arthur Hatch |

Which condition must exist to find the true angle between two planes with only a primary auxiliary view?

a. The line of intersection must be at an angle to all of the principal planes

b. The line of intersection must be foreshortened in one of the principal planes

c. The line of intersection must intersect with a third plane

d. The line of intersection must be parallel to one of the principal planes

.....
12. | I3 | b | IML | 1290 | C | Arthur Hatch |

Which type of view is required to show the true angle between two planes when the line of intersection is not parallel to one of the principal planes?

a. Oblique auxiliary

b. Secondary auxiliary

c. Primary auxiliary

d. Auxiliary sectional

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.....

13. | I4 | b | Goetsch | 1290 | C | Arthur Hatch |

Which is NOT a geometric solid?

a. Hexahedron

b. Pentagon

c. Cylinder

d. Icosahedron

.....

14. | I4 | d | Goetsch | 1290 | C | Arthur Hatch |

Which view is used to find the piercing point?

a. Inclined

b. Oblique

c. Skewed

d. Edge

.....

15. | I4 | a | IML | 1290 | C | Greg Peck |

Which describes the reference line in relation to a true length line when solving for point view?

a. Perpendicular

b. Parallel

c. Obliqué

d. Skewed

.....
16. | I4 | b | IML | 1290 | C | Greg Peck |

Which describes the reference line in relation to an oblique line when solving for true length?

a. Perpendicular

b. Parallel

c. Inclined

d. Skewed

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.....
17. | I5 | b | IML | 1290 | C | Arthur Hatch |

The visibility of two nonintersecting pipes can be determined in one view.

a. True

b. False

.....
18. | I5 | d | IML | 1290 | C | Arthur Hatch |

Which auxiliary view must be constructed to locate the piercing point between a plane and a line?

a. Secondary

b. Inclined

c. Oblique

d. Edge

.....
19. | I5 | a | IML | 1290 | C | Arthur Hatch |

Which relationship exists between two pipes crossing in space when the point of crossing in the top view and the point of crossing in the front view lie on the same projection line?

a. Intersection

b. Parallelism

c. Perpendicularity

d. Skewed

.....
20. | I5 | a | IML | 1290 | C | Arthur Hatch |

Auxiliary views may be used to find the intersection of two solids.

a. True

b. False

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.....

1. | J1 | b | IML | 1290 | C | Greg Peck |

Isometric projection is generally used in residential rendering.

a. True

b. False

.....

2. | J1 | d | IML | 1290 | C | Greg Peck |

Which presentation drawing does NOT use isometric projection?

a. Catalog

b. Technical

c. Sales

d. Architectural

.....

3. | J1 | a | IML | 1290 | C | Greg Peck |

Isometric projection techniques are used in sketching.

a. True

b. False

4.	J1	a	IML	1290	C	Greg Peck

Which is true of isometric projection?

a. Three axis angles are equal

b. Two axis angles are equal

c. One axis angle is equal

d. No axis angles are equal

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.....

5. | J2 | c | IML | 1290 | C | Greg Peck |

Which statement is true of diametric projection?

a. Depth is projected to a vanishing point

b. Height, width, and depth are full scale

c. Two of the axis angles are equal

d. Is best used to show curved surfaces

.....

6. | J2 | b | IML | 1290 | C | Greg Peck |

Which statement is true of oblique projection?

a. Depth is projected to a vanishing point

b. Is best used to show curved surfaces

c. Is used to detail cabinets

d. Views the object from below ground

.....

7. | J2 | a | IML | 1290 | C | Greg Peck |

Which statement is true of perspective projection?

a. Depth is projected to a vanishing point

b. Height, width, and depth are full scale

c. Is best used to show curved surfaces

d. The object cannot be viewed from above

8.	J2	d	IML	1290	C	Greg Peck

Which statement is true of trimetric projection?

a. Is best used to show curved surfaces

b. Depth is projected to a vanishing point

c. Very handy projection technique to use in sketching

d. Height, width, and depth are unequal

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Field	Contents	Field	Contents
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.....
9. | J3 | d | IML | 1290 | C | Greg Peck |

Which is NOT a use of pictorial drawings?

a. Design sketching

b. Assembly drawings

c. Architectural rendering

d. Detail drawings

.....
10. | J3 | a | IML | 1290 | C | Greg Peck |

Which is NOT a type of pictorial sketch?

a. Bird's-eye

b. Conceptual

c. Design

d. Presentation

.....
11. | J3 | c | IML | 1290 | C | Greg Peck |

Which statement is true concerning pictorial drawings?

a. Sketching employs no pictorial techniques

b. Pictorials are not used in catalogs

c. Exploded pictorials show the relationship of parts

d. Three point perspectives utilize two vanishing points and a station point

.....
12. | J3 | d | IML | 1290 | C | Greg Peck |

Which statement is true of pictorial drawings?

a. Pictorials are primarily used to show dimensions

b. Most of a drafter's time is spent drawing pictorials

c. All finished pictorials are shaded

d. Sketching is used to relate technical ideas

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.....
1. | K1 | c | IML | 1290 | C | Bob Fine |

Which is NOT a type of door?

a. Sliding (pocket)

b. Panel

c. Double casement

d. Bi-fold

.....
2. | K1 | b | IML | 1290 | C | Bob Fine |

Which is NOT a type of window?

a. Double hung

b. Flush or panel

c. Fixed

d. Double casement

.....
3. | K1 | d | IML | 1290 | C | Bob Fine |

Which is NOT represented by a standard symbol?

a. Bathroom fixtures

b. Kitchen and laundry fixtures

c. Lighting and electrical fixtures

d. Built-in furniture fixtures

4.	K1	c	IML	C	Bob Fine

Which is NOT an architectural material?

a. Brick

b. Wood

c. Cast iron

d. Glass

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.....
5-8. | K2 | 1-c,2-d,3-a,4-b | IML | 1290 | C | B o b Fine |

Match rooms or areas with correct characteristics.

____	1.	Foyer	a. Near kitchen area/service area
____	2.	Great room	b. Located in cooler area of house
____	3.	Garage	c. Area through which people enter the house
____	4.	Bedroom	d. Another name for family room
			e. Near kitchen and living room

.....
9. | K2 | a | IML | 1290 | C | Bob Fine |

Ceiling lines and floor lines are shown on an exterior elevation drawing.

a. True

b. False

.....
10. | K2 | c | IML | 1290 | C | Bob Fine |

Which is NOT a consideration when designing a simple floor plan?

a. Occupation of owners

b. Slope of lot

c. Amount of top soil

d. Shape of lot

11.	K2	c	IML	1290	C	Bob Fine

What area is least associated with the kitchen area?

a. Garage

b. Laundry

c. Bedroom

d. Dining

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Field	Contents	Field	Contents
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.....

12-16. | K4 | 1-d,2-c,3-e,4-a,5-b | IML | 1290 | C | Bob Fine |

Match terms on the right with correct definitions.

____ 1. Total length of building

____ 2. Points to object described by the note

____ 3. Dimensions a small area

____ 4. Contains information usually placed at bottom right of sheet

____ 5. Identifies types of materials or construction operations

a. General notes

b. Special notes

c. Leader

d. Overall dimension

e. Detail dimension

f. Special dimension

.....

17. | K4 | c | Wagner | 1290 | C | Bob Fine |

To which scale is a typical wall section drawn?

a. 1/8" scale = 1'-0"

b. 1/4" scale = 1'-0"

c. 1/2" or 3/4" scale = 1'-0"

d. 1"=20'-0" or 1"=30'-0"

.....
18-21. | K4 | 1-b,2-a,3-c,4-e | IML | 1290 | C | Bob Fine |

Arrange the steps for drawing a wall section in the correct order by matching the letter to the corresponding blank.

____ 1.	Step 1	a.	Add material thickness and crosshatching
____ 2.	Step 2	b.	Draw horizontal and vertical layout lines
____ 3.	Step 3	c.	Add dimensions and notes to section
____ 4.	Step 4	d.	Align top and front views
		e.	Add border, title, and scale

.....
22-25. | K4 | 1-c,2-d,3-b,4-a | IML | 1290 | C | Bob Fine |

Match the statements below to the correct type of detail.

____ 1.	Footing detail	a.	Shows position and layout of storage spaces
____ 2.	Roof detail	b.	Shows detail of roof overhang to wall/roof area
____ 3.	Cornice detail	c.	Ground, concrete to header, sill, floor joists detail
____ 4.	Cabinet detail	d.	Shows roof construction, materials, venting, etc.

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.....

1. | L1 | c | IML | 1290 | C | Bob Fine |

Which is the abbreviation for resistor?

a. RSTR

b. R

c. RES

d. RS

.....

2. | L1 | d | IML | 1290 | C | Bob Fine |

Which is the abbreviation for single pole, single throw switch?

a. SPDT

b. SPTD

c. SING

d. SPST

.....

3. | L1 | c | IML | 1290 | C | Bob Fine |

Which is the abbreviation for connector?

a. C

b. CON

c. CONN

d. CN

.....
4. | L1 | c | IML | 1290 | C | Bob Fine |

Which is the abbreviation for printed circuit board?

a. POT

b. PC

c. PCB

d. PCBD

.....
5. | L1 | c | IML | 1290 | C | Bob Fine |

Which is the abbreviation for a single pole, double throw switch?

a. DPDT

b. SPST

c. SPDT

d. SPBT

.....
6. | L1 | d | IML | 1290 | C | Bob Fine |

What does the abbreviation XFMR mean?

a. Dual in-line package

b. Capacitor

c. Transistor

d. Transformer

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.....
7. | L2 | b | IML | 1290 | C | Bob Fine |

Which method is used to illustrate electrical circuits in product manuals?

a. Perspective drawing

b. Pictorial drawing

c. Oblique projection

d. First angle projection

.....
8-13. | L2 | 1-ab,2-e,3-a,4-b,5-ac,6-d | IML | 1290 | C | Bob Fine |

Arrange the steps in making a printed circuit layout in correct order by matching the letter to the corresponding blank.

____ 1.	Step 1	a.	Draw an assembly layout
____ 2.	Step 2	b.	Check the assembly layout
____ 3.	Step 3	c.	Draw a technical illustration
____ 4.	Step 4	d.	Draw a printed circuit master
____ 5.	Step 5	e.	Draw a freehand sketch
____ 6.	Step 6	ab.	Study the schematic diagram
		ac.	Check the assembly layout with the schematic

.....
14. | L2 | c | IML | 1290 | C | Bob Fine |

Which is a true statement about the layout of block diagrams?

a. Vertical and horizontal liens have rounded corners

b. Thick heavy dashed lines connect components

c. Minimum number of lines crossing one another

d. Arrowheads indicate number of gates

.....
15. | L2 | d | IML | 1290 | C | Bob Fine |

Which is a function of block diagrams?

a. Show individual wire locations

b. Show names of brands

c. Use color to represent positive, negative flow

d. Indicate basic circuit functions

Field	Contents	Field	Contents
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.....

1. | M1 | b | IML | 1290 | C | Bob Fine |

When drawing piping layouts, single, double, or triple lines can be used.

a. True

b. False

.....

2. | M1 | b | IML | 1290 | C | Bob Fine |

Double line representations are usually used to draw piping components.

a. True

b. False

.....

3. | M1 | b | IML | 1290 | C | Bob Fine |

Globe valves, gate valves, and check valves are all represented by the same symbol.

a. True

b. False

```
.....
4.  | M1 | a  | IML     | 1290    | C  | Bob Fine     |
```

Piping unions are used to join two pieces of pipe.

a. True

b. False

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.....
5. | M2 | b | IML | 1290 | C | Bob Fine |

There are only two types of pipe joints, welded (or soldered) and flanged.

a. True

b. False

.....
6. | M2 | a | IML | 1290 | C | Bob Fine |

Isometric piping drawings give a true view of piping plans.

a. True

b. False

.....
7. | M2 | a | IML | 1290 | C | Bob Fine |

Piping drawings should have center lines or single lines shown in all types of piping.

a. True

b. False

.....
8. | M2 | a | IML | 1290 | C | Bob Fine |

Check valves shown in piping must show the direction of flow.

a. True

b. False

.....
9. | M3 | b | IML | 1290 | C | Bob Fine |

In piping notes OD means odds and ends.

a. True

b. False

.....
10. | M3 | a | IML | 1290 | C | Bob Fine |

Piping is available in different types of materials such as galvanized iron, black iron, copper, and plastic.

a. True

b. False

.....
11. | M3 | b | IML | 1290 | C | Bob Fine |

Bell and spigot piping connections are used to join copper piping together.

a. True

b. False

.....
12. | M3 | b | IML | 1290 | C | Greg Peck |

Common screwed pipe fittings use straight, not tapered, threads.

a. True

b. False

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.....

1. | N1 | a | IML | 1290 | C | Bob Fine |

The principal, vertical steel members used to support a building are called columns.

a. True

b. False

.....

2. | N1 | a | IML | 1290 | C | Bob Fine |

I-beams and wide flanges are manufactured in a single piece.

a. True

b. False

.....

3. | N1 | a | IML | 1290 | C | Bob Fine |

Angle iron is commonly referred to as having equal legs or unequal legs.

a. True

b. False

.....

4. | N1 | b | IML | 1290 | C | Bob Fine |

Wide flange and I-beams are identical.

a. True

b. False

.....
5. | N2 | a | IML | 1290 | C | Bob Fine |

Dimensions in structural steel are from center line to center line of members.

a. True

b. False

.....
6. | N2 | a | IML | 1290 | C | Bob Fine |

Center lines in structural drawings are used to locate beams and columns.

a. True

b. False

.....
7. | N2 | a | IML | 1290 | C | Bob Fine |

Column reference balloons are used on plans to locate reference points in structural steel construction.

a. True

b. False

.....
8. | N2 | b | IML | 1290 | C | Bob Fine |

A single line drawing is NOT the correct method of drawing structural steel plans and elevations.

a. True

b. False

Field	Contents	Field	Contents
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.....
9. | N3 | b | IML | 1290 | C | Bob Fine |

Edge of column to center line of beam is an acceptable dimensioning practice.

a. True

b. False

.....
10. | N3 | b | IML | 1290 | C | Bob Fine |

What does a single line in a plan view for structural steel represent?

a. Working surface of steel members

b. Center line of steel members

c. Top of beam and channel

d. Center line of wide flange column

.....
11. | N3 | b | IML | 1290 | C | Bob Fine |

W 24 x 76 means wide flange 24 inches wide x 76 inches.

a. True

b. False

12.	N3	d	IML	1290	C	Bob Fine

Which is NOT a structural steel shape?

a. Wide flange

b. American standard I-beam

c. American standard channel

d. National standard H-beam

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.....
1. | 01 | a | Giesecke | 1290 | C | Don Block |

The same scale should be used for all parts on a detail drawing sheet.

a. True

b. False

.....
2. | 01 | a | Gieseck | 1290 | C | Don Block |

The details of an object and its assembly can be shown on one drawing.

a. True

b. False

.....
3. | 01 | b | Madsen | 1290 | C | Don Block |

Three views of each part of an object are necessary for an assembly drawing.

a. True

b. False

.....
4. | 01 | a | IML | 1290 | C | Don Block |

Hidden lines may be used on assembly drawings.

a. True

b. False

.....
5. | 02 | d | Giesecke | 1290 | C | Don Block |

What items are shown on a parts list?

a. Checker's name, drafter's name, engineer's name

b. Scale, date, drawing number

c. Dimensions, tolerances, sheet size

d. Part name, number required, material

.....
6. | 02 | a | Giesecke | 1290 | C | Don Block |

A parts list is a necessary part of an assembly drawing.

a. True

b. False

.....
7. | 02 | b | Giesecke | 1290 | C | Don Block |

The parts list is found in the upper left corner of the drawing.

a. True

b. False

.....
8. | 02 | a | IML, Giesecke | 1290 | C | Don Block |

Another name for parts list is bill of materials.

a. True

b. False

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.....
9. | 03 | b | IML | 1290 | C | Don Block |

What is the pitch of a thread?

a. Distance between the crest and root

b. Distance from crest to crest

c. Length of threads

d. Angle between the sides of threads

.....
10. | 03 | c | IML | 1290 | C | Don Block |

In the thread note .25-28 UNF-2A, what does 28 represent?

a. Major diameter

b. Hardness of material

c. Threads per inch

d. Class of fit

.....
11. | 03 | c | IML, Madsen | 1290 | C | Don Block |

Which of the following is NOT a thread form?

a. Whitworth standard

b. American national

c. Machine taper

d. Unified

12.	03	a	IML	1290	C	Don Block

In the thread note 5/8 - 18 NF-2, what does NF stand for?

a. National fine

b. Not finished

c. Nominal fit

d. Nelson form

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.....
1. | P1 | d | IML | 1290 | C | Don Block |

Which line represents a topographic right-of-way symbol?

a. - - - - - - - - -

b. _____ - _____

c. _____ - - - - - _____

d. _____ - - _____

.....
2. | P1 | b | IML | 1290 | C | Don Block |

On a USGS topographic map a house, school, or airport is represented by the same symbol.

a. True

b. False

.....
3. | P1 | b | IML | 1290 | C | Don Block |

On a USGS topographic map, all paved roads use the same map symbol.

a. True

b. False

```
.....
4.   | P1 | b  | IML     | 1290    | C  | Don Block    |
```

On a survey drawing, the legend shows which direction is north.

a. True

b. False

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.....
5. | P2 | b | IML | 1290 | C | Don Block |

An index contour is represented by a dashed line.

a. True

b. False

.....
6. | P2 | d | IML | 1290 | C | Don Block |

Which two methods are used for establishing contours on a contour plan?

a. Vertical and horizontal

b. Zenith and nadir

c. Relief and index

d. Random shot and grid

.....
7. | P2 | b | IML | 1290 | C | Don Block |

How is the lowest elevation point shown on a depression contour?

a. "O" to mark the spot and the actual elevation

b. "X" to mark the spot and the actual elevation

c. "LEP" to identify the spot and the actual elevation

d. The lowest elevation point is not shown

8.	P2	a	IML	1290	C	Don Block

Intermediate contour lines are shown between index contour lines.

a. True

b. False

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.....
9. | P3 | d | IML | 1290 | C | Don Block |

Which type of scale is used to create a plot based on a written legal description?

a. Architectural

b. Mechanical engineer's

c. Mapping

d. Civil engineer's

.....
10. | P3 | c | IML | 1290 | C | Don Block |

Which is NOT a type of land description?

a. Metes and bounds

b. Public land sectional

c. Index and datum

d. Lot and block

.....
11. | P3 | a | IML | 1290 | C | Don Block |

On a land survey plot, which way does the north arrow point on the drawing?

a. In any direction

b. Toward top of sheet

c. Is not placed on the drawing

d. Toward right side of sheet

.....
12. | P3 | a | IML | 1290 | C | Don Block |

When plotting a written description, the scale must be shown on the drawing.

a. True

b. False

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.....

1. | Q2 | a | Giesecke | 1290 | C | Don Block |

How is the allowance for bends in a sheet metal drawing handled?

a. Added to the pattern length

b. Subtracted from the pattern length

c. Is not important for pattern length

d. Subtracted from the oblique angle

.....

2. | Q2 | b | Madsen | 1290 | C | Don Block |

A pattern drawing shows where ductwork is installed in a building.

a. True

b. False

.....

3. | Q2 | d | Madsen | 1290 | C | Don Block |

Which is the function of sheet metal ductwork?

a. Connects the thermostat to the furnace

b. Circulates refrigerant in a heat pump

c. Circulates water in a hot water heating system

d. Circulates air throughout a building

```
..........
4.   | Q2 | b   | Madsen   | 1290     | C   | Don Block     |
```

Ductwork can only be constructed in a square or rectangular shape.

a. True

b. False

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.....

5. | Q3 | d | IML | 1290 | C | Don Block |

Which is a double curved surface?

a. A ruled surface generated by a straight line that can be developed

b. A ruled surface that cannot be developed

c. Any surface generated by straight lines

d. A surface which has no straight line elements and cannot be developed

.....

6. | Q3 | b | Madsen | 1290 | C | Don Block |

Which is formed when the ends of a pattern are joined together?

a. Dimple

b. Seam

c. Key

d. Jointer

.....

7. | Q3 | a | IML | 1290 | C | Don Block |

Patterns for sheet metal are usually drawn full scale.

a. True

b. False

.....

8.	Q3	c	IML	1290	C	Don Block

Which is NOT a method of development for sheet metal?

a. Triangulation

b. Radial line

c. Perpendicular line

d. Parallel line

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Field	Contents	Field	Contents
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.....
1. | R1 | c | IML | 1290 | C | Greg Peck |

Which is an input device?

a. Screen

b. Plotter

c. Graphics tablet

d. Printer

.....
2. | R1 | b | IML | 1290 | C | Greg Peck |

Which is a function of a graphics tablet?

a. Used to measure points in 3-D space

b. Program menu overlay which allows commands to be executed

c. Hard copies of the drawing are created

d. Stores and retrieves files

.....
3. | R1 | a | IML | 1290 | C | Greg Peck |

Which describes the meaning of CAD?

a. Computer aided drafting

b. Computer aligned design

c. Completely aligned dimensions

d. Completely automated design

```
..........
4.   | R1 | d  | IML      | 1290    | C  | Greg Peck     |
```

Which item is an output device?

a. Mouse

b. Joystick

c. Graphics tablet

d. Monitor

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Field	Contents	Field	Contents
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.....
5. | R2 | a | IML | 1290 | C | Greg Peck |

What does "load a drawing" mean?

a. To bring the drawing file into the CAD program

b. To put a drawing on paper

c. To back-up a drawing file to a disk

d. To fill the drawing space with entities

.....
6. | R2 | b | IML | 1290 | C | Greg Peck |

What does "save a drawing" mean?

a. Edit incorrect information by making it correct

b. Write the file to disk

c. Add dimensions to the drawing

d. Store a drawing in a cabinet

.....
7. | R2 | c | IML | 1290 | C | Greg Peck |

Which is NOT an editing function?

a. Erase

b. Copy

c. Polygon

d. Array

```
..........
8.   | R2 | d  | IML     | 1290    | C  | Greg Peck    |
```

What does "zoom in" mean?

a. Load a drawing file

b. Work very fast

c. Exit a drawing and quickly start another

d. Enlarge an area of the screen image

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.....
9. | R3 | b | IML | 1290 | C | Greg Peck |

The steps involved in creating a CAD drawing are the same as for board drawing.

a. True

b. False

.....
10. | R3 | a | IML | 1290 | C | Greg Peck |

The CAD drawing is completed using both drawing and editing commands.

a. True

b. False

.....
11. | R3 | b | IML | 1290 | C | Greg Peck |

Once the drawing is complete, the CAD program does the dimensioning by itself.

a. True

b. False

12.	R3	a	IML	1290	C	Greg Peck

Which is considered a good CAD practice?

a. Save the drawing every 15 minutes

b. Save the drawing only at the end of the day

c. Shade all unfinished surfaces

d. Show three views of the object

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Field	Contents	Field	Contents
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.....
13. | R4 | d | IML | 1290 | C | Greg Peck |

Which is NOT used as storage media?

a. 3 1/2 inch disk

b. 5 1/4 inch disk

c. Hard drive

d. 6 inch disk

.....
14. | R4 | c | IML | 1290 | C | Greg Peck |

How many drawing files will fit on a floppy disk?

a. One drawing file per disk

b. 10 drawing files per disk

c. It depends on the disk and file size

d. It depends on the speed and size of the computer

.....
15. | R4 | c | IML | 1290 | C | Greg Peck |

Which is a true statement concerning drawing file retrieval?

a. Must be retrieved from floppy disk

b. Must be retrieved from a hard disk

c. Can be retrieved from either floppy or hard disk

d. Can be retrieved from computer memory at any time

```
..........
16. | R4 | a  | IML    | 1290    | C  | Greg Peck    |
```

Which is a true statement concerning storage of drawing files?

a. Can be stored on a floppy or hard disk

b. Can be stored in computer memory or a printer

c. Cannot be deleted from a hard disk

d. Cannot be deleted from a floppy disk

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.....

1. | S1 | b | IML | 1290 | C | Don Block |

What is 2.37468 rounded to three decimal places?

a. 2.400

b. 2.375

c. 2.374

d. 2.300

.....

2. | S1 | a | IML | 1290 | C | Don Block |

What is the decimal equivalent of 5/8?

a. .625

b. .58

c. .5

d. .4

.....

3. | S1 | a | IML | 1290 | C | Don Block |

How many square inches are in one square foot?

a. 144

b. 122

c. 62

d. 12

```
..........
4.   | S1 | b  | IML     | 1290    | C  |    |
```

One inch equals 254 millimeters.

a. True

b. False

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Field	Contents	Field	Contents
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.....
5. | S2 | b | IML | 1290 | C | Don Block |

How many degrees do the interior angles of a triangle add up to?

a. 90

b. 180

c. 270

d. 360

.....
6-10. | S2 | 1-e,2-d,3-a,4-f,5-c | IML | 1290 | C | Don Block |

____ 1.	Right angle	a.	Greater than 90° and less than 180°
____ 2.	Acute angle	b.	360°
____ 3.	Obtuse angle	c.	Greater than 180° and less than 360°
____ 4.	Straight angle	d.	Less than 90°
____ 5.	Reflex angle	e.	90° angle
		f.	180°

.....
11. | S2 | d | IML | 1290 | C | Don Block |

Which is a triangle with three equal sides and three equal angles?

a. Obtuse

b. Oblique

c. Isosceles

d. Equilateral

.....
12. | S2 | b | IML | 1290 | C | Don Block |

What is the formula for the area of a circle?

a. $C = \pi d$

b. $A = \pi r^2$

c. $A = 1/2\ bh$

d. $C = 2h + 2w$

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.....

13. | S3 | d | Cleaves | 1290 | C | Don Block |

What is the Pythagorean theorem formula?

a. $C = \pi r^2$

b. $A = h \dfrac{b_1 + b_2}{2}$

c. $A = 1/2\ bh$

d. $a^2 + b^2 = c^2$

.....

14. | S3 | b | IML | 1290 | C | Don Block |

Which is NOT a trigonometric function?

a. Tangent

b. Radical

c. Sine

d. Cosine

.....

15. | S3 | b | IML | 1290 | C | Don Block |

Which attribute(s) identify a right triangle?

a. Three 60° angles

b. One 90° angle

c. Two angles that equal 120°

d. One 120° angle

153

.....

16.	S3	b	IML	1290	C	Don Block

An oblique triangle is similar to a right triangle because both contain a 90° angle.

a. True

b. False

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Field	Contents	Field	Contents
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.....
1. | Leadership 1 | c | VICA Curriculum | 0889 | C | Fred Smith |

Why should students NOT enroll in occupational training programs?

a. To work toward a career

b. To develop business and industry contacts

c. To avoid taking math, science, or english classes

d. To work toward financial independence

.....
2. | Leadership 1 | a | VICA Curriculum | 0889 | C | Fred Smith |

Only one VICA club per school is allowed.

a. True

b. False

.....
3. | Leadership 1 | d | VICA Curriculum | 0889 | C | Fred Smith |

How many VICA districts does Missouri have?

a. 3

b. 5

c. 7

d. 9

.....
4. | Leadership 1 | b | VICA Curriculum | 0889 | C | Fred Smith |

In which national VICA region is Missouri located?

a. 3

b. 4

c. 5

d. 6

Field	Contents	Field	Contents
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.....

5. | Leadership 2 | b | VICA Curriculum | 0889 | C | Fred Smith |

Personal values rarely affect career choices.

a. True

b. False

.....

6. | Leadership 2 | a | VICA Curriculum | 0889 | C | Fred Smith |

A career should align with one's personal values, interests, and abilities.

a. True

b. False

.....
7. | Leadership 3 | b | VICA Curriculum | 0889 | C | Fred Smith |

Effective decision making can be broken down into six steps.

a. True

b. False

.....
8. | Leadership 3 | b | VICA Curriculum | 0889 | C | Fred Smith |

A new supervisor should be liked by all workers in order to be effective.

a. True

b. False

.....
9. | Leadership 3 | d | VICA Curriculum | 0889 | C | Fred Smith |

Which goal should a supervisor work toward in order to succeed and improve worker moral?

a. Keep attention on getting work done

b. Be as fair as possible

c. Avoid taking a worker's negative feelings personally

d. All the above

Field	Contents	Field	Contents
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.....

10. | Leadership 3 | a | VICA Curriculum | 0889 | C | Fred Smith |

To be more productive, workers need ways to measure and use time more effectively.

a. True

b. False

.....
11. | Leadership 4 | d | VICA Curriculum | 0889 | C | Fred Smith |

Which trait or traits do employers expect from their employees?

a. Cooperation and acceptance of evaluation

b. Honesty

c. Initiative

d. All the above

.....
12. | Leadership 4 | d | VICA Curriculum | 0889 | C | Fred Smith |

Which characteristic should employees expect from their employers?

a. Understanding of job requirements

b. Fair payment for labor

c. Equal treatment for all employees

d. All of the above

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13. | Leadership 4 | a | VICA Curriculum | 0889 | C | Fred Smith |

Effective communication, care for people, flexibility, dependability, optimism, and perseverance are traits of good leaders.

a. True

b. False

Field	Contents	Field	Contents
1	Unique item number	5	Date (MMYY)
2	Duty area and task number (Mo. competency profile)	6	Learning domain (Cognitive, Affective, Psychomotor)
3	Letter of correct answer	7	Writer(s)/reviewer(s)
	Source (author, year of publication)	8	Accompanying artwork (ART)

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14. | Leadership 5 | a | VICA Curriculum | 0889 | C | Fred Smith |

Good table manners include entering into table conversation.

a. True

b. False

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15. | Leadership 5 | b | VICA Curriculum | 0889 | C | Fred Smith |

A coat room clerk at a restaurant is usually NOT tipped.

a. True

b. False

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16. | Leadership 5 | a | VICA Curriculum | 0889 | C | Fred Smith |

Employees should stand when an authority figure (employer) joins them for a meal.

a. True

b. False

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17. | Leadership 6 | b | VICA Curriculum | 0889 | C | Fred Smith |

It is a good idea to use big words when writing in order to impress people.

a. True

b. False

.....
18. | Leadership 6 | a | VICA Curriculum | 0889 | C | Fred Smith |

Self-concept affects verbal communication.

a. True

b. False

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19. | Leadership 6 | a | VICA Curriculum | 0889 | C | Fred Smith |

When speaking, always use a vocabulary that others can understand.

a. True

b. False

Field	Contents	Field	Contents
1	Unique item number	5	Date (MMYY)
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20. | Leadership 7 | a | VICA Curriculum | 0889 | C | Fred Smith |

Professionals respect themselves and others.

a. True

b. False

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21. | Leadership 7 | a | VICA Curriculum | 0889 | C | Fred Smith |

A person's code of ethics defines his or her principles or standards of right and wrong.

a. True

b. False

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22. | Leadership 7 | a | VICA Curriculum | 0889 | C | Fred Smith |

A professional code of ethics includes both legal and moral standards.

a. True

b. False

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23. | Leadership 8 | a | VICA Curriculum | 0889 | C | Fred Smith |

Appropriate business dress for women would include a skirt.

a. True

b. False

.....
24. | Leadership 8 | a | VICA Curriculum | 0889 | C | Fred Smith |

Appropriate business attire for men would include a traditional dark suit.

a. True

b. False

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25. | Leadership 8 | a | VICA Curriculum | 0889 | C | Fred Smith |

Fashion accessories reflect the self-image of an individual.

a. True

b. False

.....
26. | Leadership 8 | a | VICA Curriculum | 0889 | C | Fred Smith |

Getting plenty of sleep and avoiding junk food can improve personal appearance.

a. True

b. False

Field	Contents	Field	Contents
1	Unique item number	5	Date (MMYY)
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27. | Leadership 9 | a | VICA Curriculum | 0889 | C | Fred Smith |

A resume is a well-organized overview of what one has to offer an employer.

a. True

b. False

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28. | Leadership 9 | a | VICA Curriculum | 0889 | C | Fred Smith |

A letter of application should ask an employer for an interview.

a. True

b. False

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29. | Leadership 9 | a | VICA Curriculum | 0889 | C | Fred Smith |

The local chamber of commerce can help people research employers.

a. True

b. False

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30. | Leadership 10 | a | VICA Curriculum | 0889 | C | Fred Smith |

When parliamentary procedures are used at a meeting, only one subject at a time should be discussed.

a. True

b. False

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31. | Leadership 10 | a | VICA Curriculum | 0889 | C | Fred Smith |

Parliamentary procedure calls for the finishing of old business before new business is started.

a. True

b. False

.....
32. | Leadership 10 | a | VICA Curriculum | 0889 | C | Fred Smith |

Parliamentary procedure calls for standing committee reports to be given before special committee reports.

a. True

b. False

.....
33. | Leadership 10 | a | VICA Curriculum | 0889 | C | Fred Smith |

Proper use of the gavel signals members to stand or sit.

a. True

b. False